DOCUMENT RESUME

ED 468 726 HE 035 235

TITLE	Critical Issue Bibliography (CRIB) Sheet: Technology in Higher Education.
INSTITUTION	ERIC Clearinghouse on Higher Education, Washington, DC.
SPONS AGENCY	Office of Educational Research and Improvement (ED), Washington, DC.
PUB DATE	2001-12-00
NOTE	11p.; For a related discussion of technology in the higher education classroom, see HE 035 233.
AVAILABLE FROM	For full text: http://www.eriche.org.
PUB TYPE	ERIC Publications (071) -- Reference Materials - Bibliographies (131)
EDRS PRICE	EDRS Price MF01/PC01 Plus Postage.
DESCRIPTORS	Annotated Bibliographies; *Computer Uses in Education; *Educational Technology; *Higher Education; Institutional Characteristics; *Technological Advancement

ABSTRACT

This Critical Issue Bibliography (CRIB) Sheet focuses on how technology is having an impact on the overall institutional processes and goals of higher education institutions. It is important that technology should not just be added to existing processes and structures, but integrated into institutional processes. This annotated bibliography describes 1 Web resource and 31 print resources, all of which are in the ERIC database. (SLD)

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Critical Issue Bibliography (CRIB) Sheet:

Technology in Higher Education

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A Critical Issue Bibliography (CRIB) sheet is a selected bibliography on a topic of interest in the field of higher education. The majority of the literature cited in the bibliography is found in the ERIC Database, though some CRIB sheets also include other literature, such as selected Internet resources. CRIB sheets are updated annually.

Many of the issues discussed in one bibligraphy relate to another CRIB sheet topic. For example, the CRIB sheet on affirmative action is closely related to the CRIB sheet on creating a multicultural climate on campus. We have tried to note such connections in the bibliographies themselves; we encourage you not to see CRIB sheet topics as discrete and to explore several bibliographies on related topics.

This CRIB sheet was updated in December 2001.

Critical Issue Bibliography (CRIB) Sheet:
Technology in Higher Education

Access, cost efficiency, flexibility, information age, synchronous learning, student centered pedagogy, group teaching -- these are some of the buzz words used by people interested in integrating technology into higher education institutions. Institutions may be struggling or thriving as they implement new technology to build virtual libraries; provide access to the Internet; upgrade different administrative departments, schools and residence halls; select appropriate hardware, software, and systems for the institution as a whole; and generally integrate technology into teaching and learning. Some institutions have met their goals by utilizing technology to its fullest potential, while others are challenged because adopting new technology has resulted in increased costs. Experts emphasize that technology planning is critical for universities and colleges, planning that includes creative thinking and exploring new ways of doing things. Technology should not just be added to existing processes and structures, but integrated into institutional processes, e.g., teaching large courses completely over the Internet, eliminating duplication among several campuses by sharing resources electronically, etc. This bibliography complements our CRIB sheet, "Technology in the Classroom," (http://www.eriche.org/crib/techincl.html) by focusing on how technology is impacting overall institutional processes and goals.

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Web Resources

http://adaptech.dawsoncollege.qc.ca/
Computer, Information and Adaptive Technologies: Students with Disabilities in Colleges and Universities
The ADAPTECH Project consists of a team of academics, students and consumers conducting research on the use of computer, information and adaptive technologies by Canadian college and university students with disabilities. Based at Dawson College and are funded by both the Office of Learning Technologies (OLT) as well as by the Social Sciences and Humanities Research Council of Canada (SSHRC). Our goal is to provide empirically based information to assist in decision making that ensures that new policies,

software and hardware reflect the needs and concerns of a variety of individuals: college and university students with disabilities, professors who teach them, and service providers who make technological, adaptive, and other supports available to the higher education community.

Other Resources

EJ620919
Sorensen, A. A., & Snider, J. C. (2001, Winter). Is increasing our reliance on technology enhancing education? *Journal of Continuing Higher Education, 49* , 1, 11-18.
Analyzes the relationship between megatrends (technology, demographics, globalization, branding, consolidation, outsourcing) and use of technology in higher education. Considers how the university's historic mission is eroding and suggests possibilities for both a commitment to that mission and use of high-tech distance learning in the global marketplace (Contains 55 references).

ED451744
Green, K. C. (2001). *Campus computing, 2000: The 11th national survey of computing and information technology in American higher education.*
The 2000 Campus Computing Survey, the 11th such survey, was sent to the chief academic officer at 1,176 two-year and four-year colleges and universities across the United States. By October 2000, 506 responses had been received, a response rate of 43%. New data reveal that the growing demand for technology talent across all sectors of the U.S. economy poses significant staffing challenges for U.S. colleges and universities. Respondents placed a high priority on personnel issues, and the survey data highlighted the gap in user support policies and services across all types of colleges and between the technology dependent/technology intensive campus and corporate communities. The survey data highlight the continuing challenge of information technology planning in higher education. Overall there is more technology in the classroom, with 59.5% of all college courses using electronic mail, and 42.6% of courses using Internet-based resources (Contains 13 figures and 19 tables).

ED452775
Hu, S., & Kuh, G. D. (2001). *Computing experience and good practices in undergraduate education: Does the degree of campus wiredness matter?*
Responses to the College Student Experience Questionnaire Fourth Edition (C. Pace and G. Kuh, 1998) from 18,844 students at 71 colleges and universities were analyzed to determine if the presence of computing and information technology influenced the frequency of use of various forms of technology and other educational resources and the exposure to good educational practices. Undergraduates attending "more wired" campuses as determined by the 1998 and 1999 Yahoo Most Wired Campus survey more frequently used computing and information technology and reported higher levels of engagement in good educational practices than their counterparts at less wired institutions. Nontraditional students benefited less than traditional students, but both women and men students benefited considerably from campus wiredness. An appendix

contains the survey items that represent good educational practices. (Contains 4 tables and 45 references.)

EJ622925
Carlson, P. A. (2001). Information technology and organizational change. *Journal of Technical Writing and Communication, 31* , 1, 77-95.
Examines three sought-after Instructional Technology Outcomes (increased productivity, managed change, and enhanced human abilities) concluding that much of IT falls short through impoverished implementation planning and blind faith in technology to solve problems. Discusses four areas of opportunity.

ED451817
Phipps, R. A., & Wellman, J. V. (2001). Funding the "Infostructure": A guide to financing technology infrastructure in higher education. *New Agenda Series, 3*, 2.
This report is based on a survey of state financial officers and interviews with experts and institutional representatives on the financing of technology in higher education. Officials saw technology as a key issue for their schools' success, whether it is used for distance education, enhancing student services, or supporting the work of administrators and researchers. Based on the report's findings, the authors make recommendations that can help campus officials and state and federal policy makers develop funding policies for information technology. The report also offers a new lexicon for the components of technology infrastructure to create the necessary common language for communicating about technology. (Contains 21 references.)

ED428637
Gladieux, Lawrence E., & Swail, Watson Scott. (1999). *The virtual university & educational opportunity. Issues of equity and access for the next generation. Policy perspectives.* Washington, DC: College Board Publications.
This report addresses issues concerned with educational programs provided through the Internet-the "virtual university"-and their possible impacts on traditional higher education.

ED428645
Green, Kenneth C. (1999). *Campus computing, 1998. The ninth national survey of desktop computing and information technology in American higher education.* Encino, CA: Campus Computing.

EJ579843
Lustbader, Paula. (1998, Sep). Teach in context: Responding to diverse student voices helps all students learn. *Journal of Legal Education, 48*, 3, 402-16.
This article examines the disjunction between what law teachers mean and how students interpret what is being taught explains why a significant number of law students are not learning or performing at their capability levels.

ED421916
Enghagen, Linda K. (1997). *Technology and higher education.* Washington, DC:

National Education Association.
This book is about technology and higher education.

ED412815
Van Dusen, Gerald C. (1997). *The virtual campus: Technology and reform in higher education*. [Report No. EDO-HE-25-5]. Washington, DC: George Washington University, Graduate School of Education and Human Development.
This digest summarizes a larger document of the same title which examines the implications of teaching on the virtual college campus.

EJ549269
Kesner, Richard M. (1997, Summer). Developing an information technology support model for higher education. *Cause/Effect, 20*, 24-30.
A look at the way Babson College has responded to increased campus computer use by using innovative techniques to improve their support services.

EJ554126
Ringle, Martin D. (1997, Fall). Forecasting financial priorities for technology. *Cause/Effect, 20*, 22-29.
This article presents the argument that with technology costs and revenue opportunities changing rapidly, colleges' future financial strategies concerning technology will have to be more agile and adaptable than ever. It also presents financial models from 20 independent colleges and universities, and discusses how they have been used to define a financial strategy for technology at other institutions.

EJ544641
(1997, Spring). Current issues for higher education information resources management. *Cause/Effect, 20*, 4-7.
Current and developing issues in college and university computing are delineated, including: next generation networks; achieving widespread integration of technology into teaching and learning; meeting high demand; the virtual university; information policy in a networked environment; replacement of administrative systems; information resources organization and job restructuring; support for distributed computing; and management of information resources and assets.

EJ543002
Oblinger, Diana G. (1997, Winter). High tech takes the high road: New players in higher education. *Educational Record, 78*, 30-37.
Colleges and universities can capitalize on advancing information technology to provide new options and opportunities for students and bring profit to the institution. Commercial opportunities include: educational production, certification, and delivery services; courseware development; creation of subscription services for access to information technology; processing of massive amounts of information about students and performance (data "mining"); and other information services.

EJ543003
Sullivan, Eugene. (1997, Winter). Campus technology trends. *Educational Record, 78*, 35-36.
Today's new technologies are allowing new colleges and universities to not only extend programs to off-campus students but also change to a learner-centered model of education, stressing collaboration and increased use of distributed multimedia learning environments. Partnerships between institutions, between institutions and agencies, and between institutions and business to create these opportunities are increasing.

ED403837
McClure, Polley A., & Others. (1997). *The crisis in information technology support: Has our current model reached its limit?* [CAUSE Professional Paper Series, No. 16]. Boulder, CO: CAUSE.
This essay addresses the fundamental changes in higher education that make existing models of information technology support inappropriate and insufficient, and it suggests how new models might evolve. The paper discusses three primary issues that define the current crisis: overwhelming demands on the central information technology organization; deteriorating quality of support; and scapegoating of central information technology organizations.

EJ549257
Daniel, John S. (1997, July/August). Why universities need technology strategies. *Change, 29*, 10-17.
Examines the use of technology in renewing American higher education so that it becomes competitive worldwide. Shows ways for American institutions to better use the technology available to them.

EJ549267
Hanss, Ted. (1997, Summer). Internet 2: Building and deploying advanced, networked applications. *Cause/Effect, 20*, 4-7.
Internet 2 is a consortium of over 100 universities investing to upgrade campus and national computer networks. This article describes the project's goals and the issues it intends to address, as well as ways for other higher education institutions to get involved.

EJ541295
Barton, Lyle, & Cartwright, G. Phillip. (1997, March/April). Reciprocal technology transfer: Changing partnerships. *Change, 29*, 44-47.
Partnerships between businesses and higher education institutions can help meet the training and information-technology needs of businesses and simultaneously increase the expertise and technology base of the institutions. Challenges include obtaining venture capitol, personnel, cultural differences, and legal issues. A Kent State University (Ohio) program which contracted with several businesses for technology transfer illustrates the potential of such efforts.

EJ539399
Cavanaugh, John C., and Others. (1996, Winter). Graduate admission processing on the

world wide web. *Cause/Effect, 19*, 52-55.
Reports the successful design and implementation of a World Wide Web application for handling graduate applications at the University of Delaware that allows 46 departmental admissions committee faculty and staff to access up-to-the-minute information from their workstations. The application has reduced interdepartmental paperwork and processing time.

EJ539392
Hodges, Marjorie W., & Worona, Steven L. (1996, Winter). Legal underpinnings for creating campus computer policy. *Cause/Effect, 19*, 5-9.
Provides guidelines for the development of campus computer policies, focusing on legal issues related to adult material, harassment, privacy, commerce, and copyright. Notes that computer use policies and practices need to evolve in concert with the changing computer culture.

EJ539396
Gloster, Arthur S., II, & Salzberg, Steven A. (1996, Winter). Multimedia and asynchronous learning: Changing the support model for information technology services. *Cause/Effect, 19*, 27- 29, 34-36.
Describes plans and support models at Virginia Commonwealth University and Randolph-Macon College (Virginia) aimed at improving instruction by integrating digital technologies across the curriculum and transforming information technology support units. Focuses on the development of the electronic campus, digital libraries, virtual classrooms, faculty support, and instructional development.

ED405762
Green, Kenneth C. (1996, December). *1996: The seventh national survey of desktop computing in higher education*. Campus Computing. Encino, CA.
This monograph reports findings of a June, 1996 survey of computing officials at approximately 660 two- and four-year colleges and universities across the United States concerning increasing use of technology on college campuses.

ED392341
Track 7: Professional Development. (1996). *Realizing the potential of information resources: Information, technology, and services*. Boulder, CO: CAUSE.
Eight papers are presented from the 1995 CAUSE conference track on professional development issues faced by managers of information technology at colleges and universities.

EJ521709
Blansfield, Karen C. (1996, March). High-tech connections. *Currents, 22*, 34-38.
Ways in which college alumni officers are using emerging technology to enhance regional programming and distance communication are described, including World Wide Web sites, electronic mail, and satellite and video technologies. Suggestions are made for getting started: defining goals, doing research, offering inexpensive connections, and establishing guidelines for Web sites.

EJ508755
Lowry, Charles B. (1995). Preparing for the technological future: A journey of discovery. *Library Hi Tech, 13*, 39-53.
Discusses how information technology and information retrieval may be used to build the virtual library, based on examples from Carnegie-Mellon University. Topics include information technology infrastructure, including distributed computing; Boolean searching; natural language processing; navigating the Internet; and prototypes and problems at Carnegie-Mellon.

EJ501579
Yuochunas, Nancy. (1995, Spring). DCE: A foundation for administrative software collaboration in higher education. *Cause/Effect, 18*, 8-10.
As higher education institutions plan for the future, common agreement to build open distributed computing environments (DCE) using common standards such as those of the Open Software Foundation can help exploit new application design approaches that promote application sharing, a more efficient way of meeting upcoming challenges.

ED404924
Gilbert, Steven W., & Green, Kenneth C. (1995). *Information technology: A road to the future?* Washington, DC: National Education Association.
This is meant to be a guide for university faculty and staff in incorporating technology into higher education. This publication focuses most closely on email, word processing, and Internet information.

EJ491382
Branin, Joseph J., & Others. (1994, Fall). Integrating information services in an academic setting: The organizational and technical challenge. *Cause/Effect, 17*, 26-31,36-37.
The University of Minnesota's Integrated Information Center focused on both technical and organizational integration to bring coherence and unity to support and delivery of information services. After six years, while unexpected progress has been made with end users and technological issues have progressed well, organizational issues continue to present challenges.

EJ487886
Mathieson, Kieran. (1994). Managing information technology in a university: Three principles to guide organizational design. *School Organization, 14*, 169-79.
Information technology (IT) presents universities with new challenges and opportunities. This paper identifies three principles to guide IT management: consideration of IT when formulating strategic plans; integration of IT management to enhance recognition of economies of scale and opportunities for technical substitution; and direct user involvement in managing information.

ED377795
Ernst, David J. and Others. (1994). *Organizational and technological strategies for higher education in the information age*. [CAUSE Professional Paper Series, 13]. Lansing, MI: CAUSE, Inc.

This paper examines five key trends impacting higher education administration: (1) traditional funding sources are flat or decreasing; (2) public expectations and state mandates are calling for more reporting requirements and accountability; (3) consumer expectations demand more sophisticated services requiring greater access to date; (4) evolving organizational structures will significantly change traditional hierarchies; and (5) sophisticated knowledge workers require expanded technical and consulting support.

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